2 Sheets—Sheet 1.

S. DARLING.

RAILROAD CAR VENTILATOR.

No. 189,022. Patented April 3, 1877.

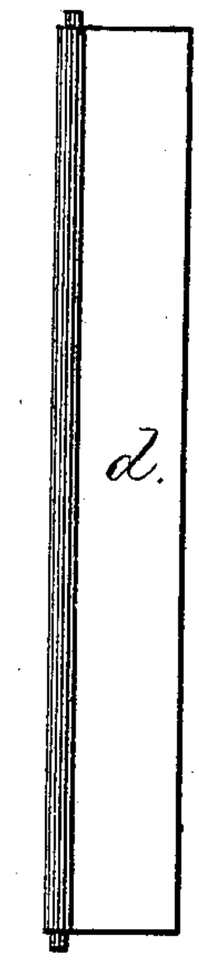
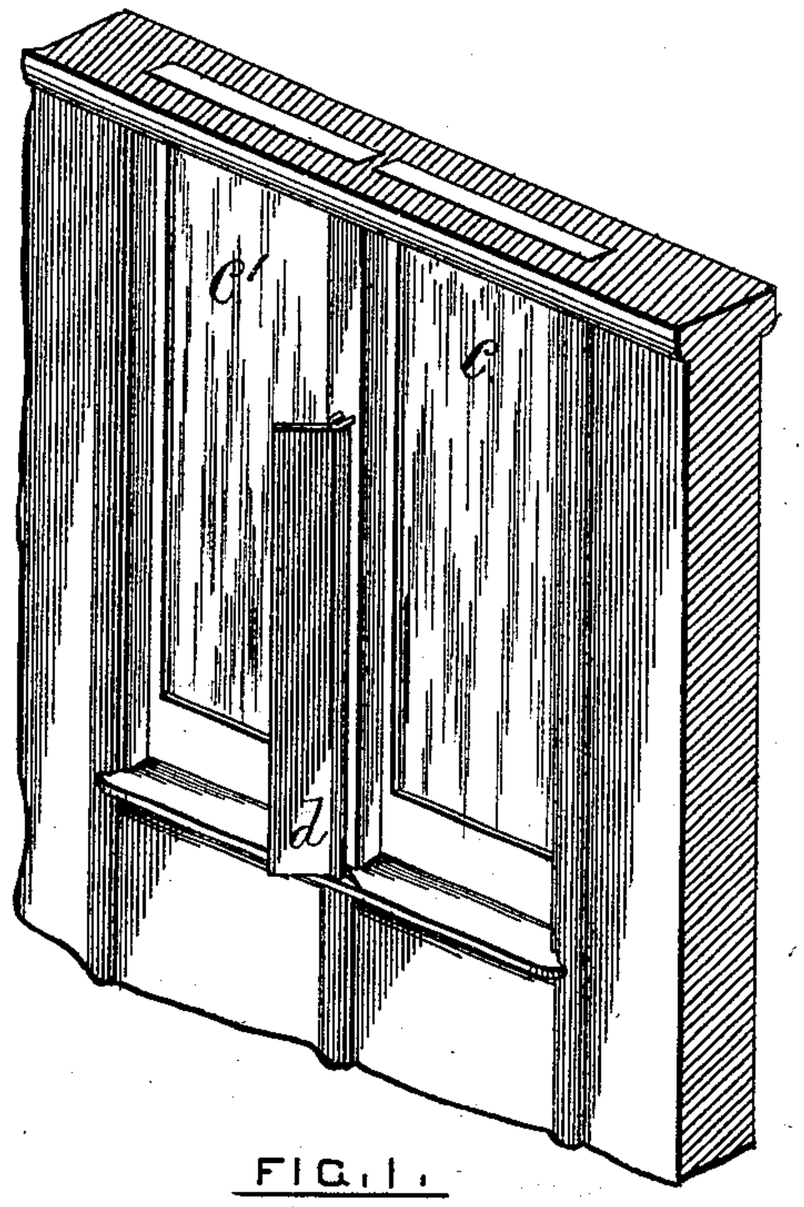


FIG. 2.



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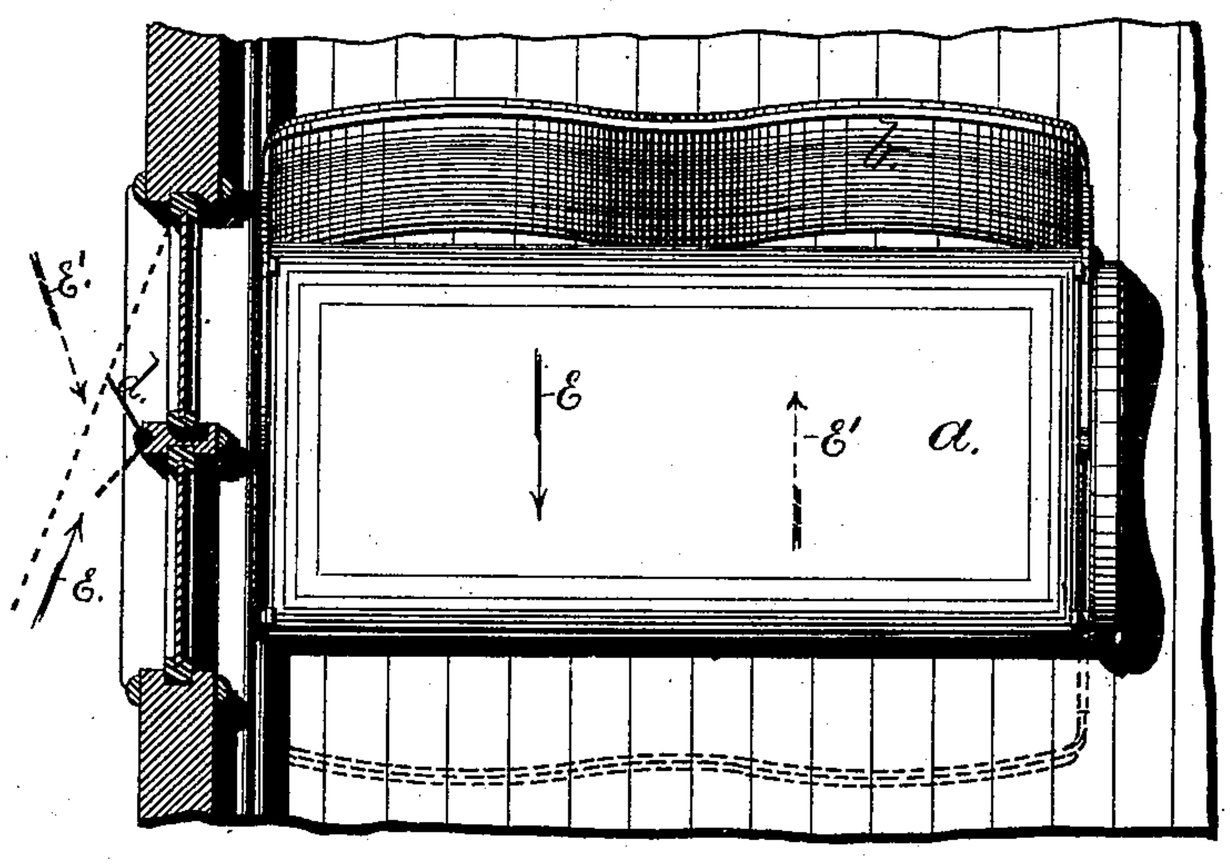

FIG. 3.

WITNESSES.

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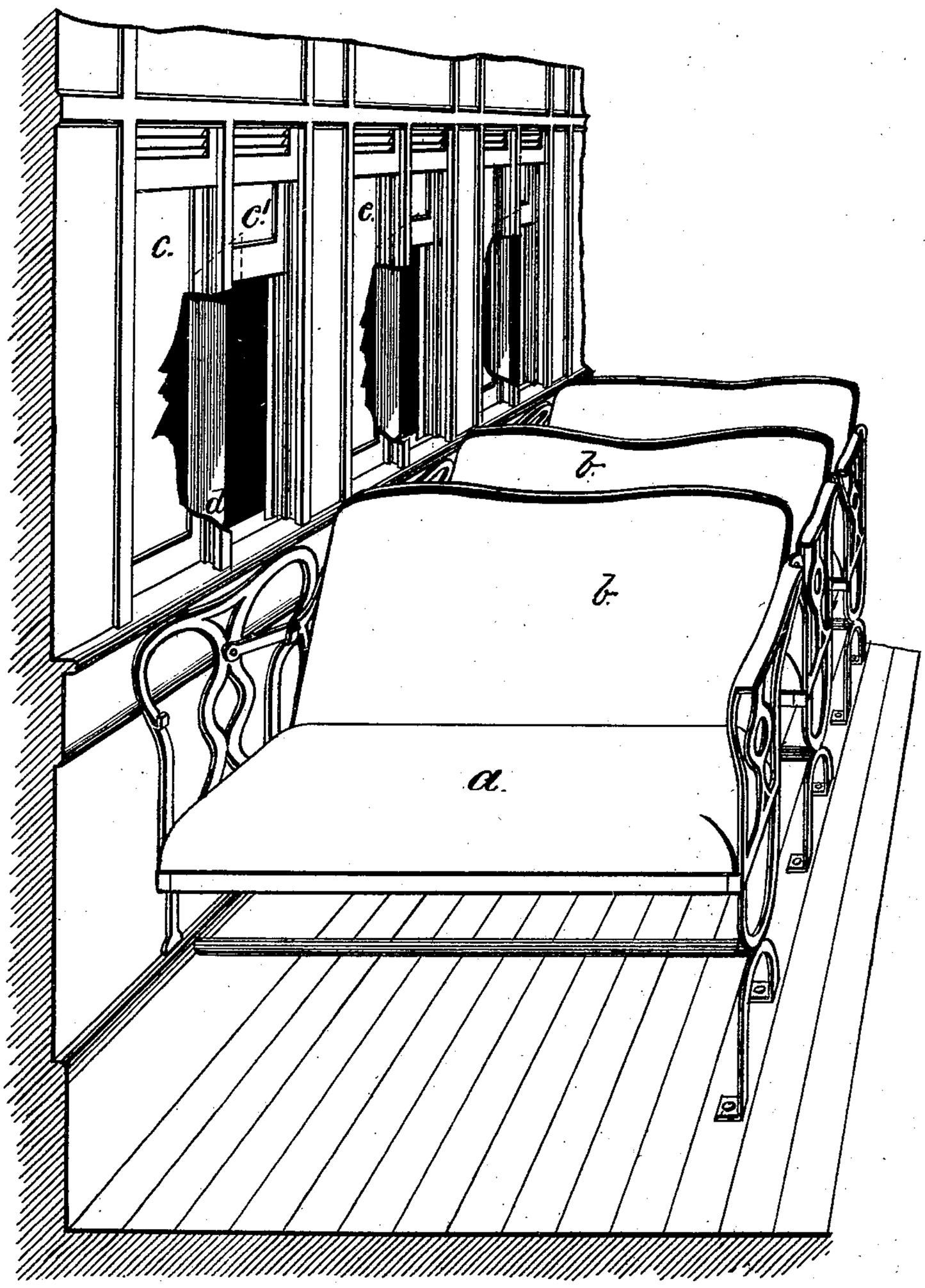

FIG. 4.

WITNESSES.

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UNITED STATES PATENT OFFICE.

SAMUEL DARLING, OF PROVIDENCE, RHODE ISLAND.

IMPROVEMENT IN RAILROAD-CAR VENTILATORS.

Specification forming part of Letters Patent No. **189,022**, dated April 3, 1877; application filed August 31, 1876.

To all whom it may concern:

Be it known that I, SAMUEL DARLING, of the city of Providence and State of Rhode Island, have invented certain new and useful Improvements in Railroad-Cars; and I hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

The object of my invention is to so arrange the windows of railroad-cars that the car will be thoroughly ventilated, and that, while a large supply of air is admitted, all the dust and cinders are prevented from entering the car.

The nature of the invention consists in the arrangement, with reference to a reversible railroad-car seat, of a divided window and projecting deflector, constructed so that dust and cinders are prevented from entering the car, and still air is supplied to the occupants of the car-seat, and also so that both the car-seat and the ventilating arrangement shall be reversible and act with equal efficiency when the car is moving in one or in the opposite direction.

Figure 1 is an outside perspective view of the vertically-divided car-window, showing the hinged deflector secured to the partition-strip between the sash. Fig. 2 is a view of eth hinged deflector. Fig. 3 is a ground plan, showing the divided window in section, the hinged deflector also in section, and the reversible car-seat in top view and in solid lines, when the car is moving in one direction, and in broken lines when moving in the opposite direction. Fig. 4 is a perspective view, showing the arrangement with reference to the reversible car-seats in the interior of the car.

In the drawings, *a* is the car-seat; *b*, the reversible back of the car-seat. *c* and *c'* are the sashes of the vertically-divided window. *d* is the hinged deflector. E and E′ are the arrows indicating the direction in which the car is moving.

When a railroad-car is moving at a given speed, the air will pass along the sides at nearly the same speed; and when, by means of a deflector, such as is shown in the drawings, the direction of the moving air is changed, all ponderable matter held in suspension in the air is deflected and carried by its own momentum and the speed at which the car moves a given distance.

To prevent ashes, dust, and cinders entering a car-window which, for the convenience of the passengers, is open, three things must be considered—viz, the speed of the moving car, the width of the window, and the distance from the side of the car to the edge of the deflector.

At a high speed a certain width of the deflector will protect a wider window than at a lower speed; but, in practice, a speed of about twenty miles per hour must be taken as a standard, and at this speed the deflector must project about one-third the width of the window.

As the windows in the usual and nearly universally used railroad-cars must conform to the space required for a reversible car-seat, the dimensions of the windows are confined within narrow limits. They cannot be made narrower than now made without causing great discomfort to the passengers; and as it is not practical to increase the speed, the only remedy would be to allow the deflector to project a greater distance from the side of the car. This, also, is impossible, as the cars are now constructed with reference to the distance between two tracks, so that trains may pass each other without the danger of interference between the cars, and a certain limited surplus is allowed for safety. Consequently the deflector cannot project much beyond the sides of the car.

In my present invention all these conditions have been observed, and by dividing the present car-window vertically into two independent sashes, the relation of the window to the reversible car-seat is secured, so as to allow the whole to be used when the car is moving in either direction, and in both directions, with a deflector projecting but little, the passenger on the seat may have a current of air passing by and around him, free from dust, ashes, or cinders. The rear half of the divided window being open and the forward half being closed, the deflector *d* will protect the narrow opening; and when the direction of the car is reversed, by reversing the car-seat and closing one and opening the other win

dow or sash, the relative positions of the car-seat and the window will be retained, and the ventilating arrangement will be as efficient and convenient as before the direction in which the car moved was reversed.

By thus dividing the ordinary-sized car-window vertically into two sashes, each opening can be readily protected by the hinged deflector *d;* but I do not wish to confine myself to the use of the hinged deflector, as the parting-strip between the two sashes may be arranged to project sufficiently from the face or side of the car to answer the purpose of the deflector, or a molded or beveled fender may be secured to the parting-strip for this purpose.

The car-windows now made and built in the cars may be readily altered by taking out the sash and placing a partition-strip in the center, arranged with grooves to receive the two narrow sashes, and either arranged to project beyond the outside of the car or provided with a fender. Each partition-strip may be made to extend even with the parting-strip between the sash and the blind, and the blind now used may be used again, protecting both narrow sashes and shading the whole window, as before.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

The combination, with reversible car-seats, of divided windows, the same consisting of single sashes separated by a parting-strip, having a deflector hinged to its outer surface, substantially as and for the purpose set forth.

SAMUEL DARLING.

Witnesses:

JOSEPH A. MILLER,

S. O. ROCKWOOD.